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# General Notes.

## GEOLOGY AND PALEONTOLOGY.

**Hollick on Block Island.**—The series of investigations carried on by Mr. Arthur Hollick in Staten Island, Long Island, Martha's Vineyard and Nantucket now includes Block Island. For several years Mr. Hollick has carefully recorded his observations, and has accumulated a vast amount of geological information, based on both paleontologic and stratigraphic data. His latest views on the relations these islands bear to each other are given in a recent paper as follows:

"Block Island has been brought into a line geologically with Long Island, Martha's Vineyard and Nantucket. They all had their origin in one series of cause and effect. They manifestly represent remnants of the former coastal plain which consisted of Cretaceous and Tertiary sands, gravels, clays and marls. The glacier of the Ice Age squeezed upward and pushed forward these incoherent strata into a series of contorted folds along its line of furthest advancement, depositing on top the detritus of the moraine. The ridge so formed was at first continuous, but with the gradual sinking of the coast, and the action of the ocean, the less elevated portions have succumbed, and only the highest parts, now represented by these islands, remain above water. All the facts point to this conclusion, and even the most superficial observation shows that the phenomena of submergence and erosion are in active operation at the present time. Should they continue in the future it requires but little prevision to appreciate that Block Island and the islands to the eastward will continue to shrink in size, disappear, and eventually form merely parts of the shoals which now connect and surround them. Montauk Point will continue to recede, and, by the submergence of the low, narrow strip of land in the vicinity of Canoe Place, a new island will be formed from what remains of the Point." (Trans. N. Y. Acad. Sci., XVI, 1896.)

**Age of the Himalaya.**—In a discussion of the geology of Hazara, India, Mr. C. S. Middlemiss again urges the great age of the Himalaya as opposed to the more popular idea that they were the product of yesterday, geologically speaking. He states that "it has been gradually becoming evident to all who really examine the question in detail that the Himalaya are and have been in a constant state of change; a state of elevation along the main axis and depression along the mountain-foot, with intermediate zones of crushing, crimpling, and over-riding along shear and thrust planes. Hence, in speaking of the Himalaya of a past geological age or epoch I mean that old representative of them which held about the same position, and acted functionally in the same way as does the mountain range going by the name of Himalaya to-day. It may sometimes have been represented by long parallel coast lines, or by archipelagoes with chains of mountainous islands following similar parallel lines, but that it kept certain original features, and that a core recognizable in its unity persisted throughout Tertiary, Secondary, and possibly into Paleozoic times, I have no doubt." (Mem. Geol. Surv. India, XXVI, 1896.)

**Geological History of the Bermudas.**—Mr. Tarr's field work in the Bermudas results in the following conclusions in regard to the history of these islands as revealed by the rocks. First, there was a base rock, formed by the waves which ground up shell fragments upon the beach. This was consolidated into a dense limestone, which was elevated and denuded, and finally depressed and attacked by the waves. During the last stage it was partly covered by a beach deposit. Then came an uplift during which a wind-drift structure of consolidated coral sand was formed on the beach rock. The last stage has been a depression that carried the level down nearly to that of the beach which was formed before the uplift occurred. This work of construction has been done in recent times, the history dating back into Pleistocene time only, or possibly early Cenozoic. (Amer. Geol., Vol. XIX, 1897.)

**Canadian Paleozoic Fossils.**—A systematic list of all the species from the Galena-Trenton and Black River formations of the vicinity of Lake Winnipeg, now in the Museum of the Canadian Survey, prepared by Dr. Whiteaves, is published by the Survey, with descriptions and illustrations of 26 new species. According to the author, the most striking feature of the fossils of the Winnipeg and Red River formations is the large size to which many of the specimens attain. Reference is made to one of the Receptaculitidæ (*R. owenii*) which is known to be 12–20 inches in diameter. Orthoceratites have been found measuring 4½ to 6 feet in length. Rough casts of the interior of spirally coiled discoidal shells, apparently allied to Barrandeoceras are nearly or quite two feet across. A siphuncle of *Endoceras crassisiphonatum*, which is also imperfect at both ends, is nearly 3 feet long, and the fin cheek of a trilobate, *Asaphus* (*Isotelus*) *gigas*, indicates a specimen that must have been twenty inches in length when alive.

A brief resumé of the exploration of the Lake Winnipeg limestones prefaces the descriptions of the fossils. (Paleozoic Fossils, Vol. III, Pt, III Ottawa, 1897.)

**Kellaways Fauna in Baluchistan.**—A monograph prepared by Dr. Noetling, and the Geological Survey of India, deals with the fauna of Kellaways from Mazár Drik, Baluchistan. The specimens which have unfortunately suffered more or less from deformation by pressure, have been carefully compared with the type specimens from the Jurassic beds of Kutch, which were worked out by Professor Waagen, and the following determinations have been made:

There are in all 22 species, of which 17 are determined specifically, while of 5 only the genus could be determined. Of the 17 forms identified 16 have already been described, while one form, *Perisphinctes baluchistanensis* is recognized as new.

The 22 species represent the following classes: Brachiopoda 2, Pelecypoda 3, Gastropoda 1, Cephalopoda 16. The character and distribution of these fossils indicates that the *Polyphemus* limestone in which they were found is the representative of the *Macrocephalus* beds of Kutch, and is homotoxial with the lower Kellaways beds of Europe.

Six page plates of lithographed drawings illustrate the work.

**Fauna of the Wombeyan Caves, N. S. W.**—At a recent meeting of the Natural History of Glasgow, Dr. Brown exhibited the following series of fossils from the bone breccia deposit which he had discovered recently in the neighborhood of the Wombeyan Caves in New South Wales:

1. Two almost perfect jaws of *Burramys parvus* Broom, a Diprotodont marsupial, chiefly characterized by its large grooved premolars. It is regarded by Dr. Broom as being intermediate between the Phalangers and the Macropodids. There is reason to believe that Burramys is the nearest known relative to the extinct pouched lion *Thylocoleo carnifex* Owen.
2. Two lower jaws and a specimen exhibiting the almost complete maxillary teeth of *Paleopelaurus elegans* Broom, a small Diprotodont believed to be intermediate between Petaurus and Gymnobelidens, and probably the ancestor of both.
3. Premolars and molars of *Pseudochirus antiquus* Broom, an extinct Ring-tailed Phalanger.
4. Lower jaw of *Dromecia nana* (Desm.), the small Tasmanian Dormouse-Phalanger.
5. Lower and upper jaws of *Phascologale flavipes* Waterh, the existing yellow-footed pouched mouse.
6. Lower jaw of *Phasacologale penicillata* (Shaw), the existing Brush-tailed Pouched Mouse. (Proceeds. Nat. Hist. Soc., Glasgow, Vol. IV, Pt. III (1895–96), (1897.)

**A Region of Environmental Change.**—One of the most important geological changes which has taken place along the Atlantic coast in recent times was the closing up of the Currituck Inlet, North Carolina, by drifting sands in 1828. Previous to that year this inlet formed such a passage from the ocean through a narrow outer beach into the waters of Currituck Sound as is formed by either the new or Ocracock Inlet to Pamlico Sound now. With the closing of the Currituck Inlet there was the conversion of upwards of one hundred square miles of shallow salt and brackish water to fresh water; and it is within the memory of men now living that the resultant changes were immediate and striking.

Previously the sound had been a valuable oyster bed. Within a few years the oysters had all died out and their shells may now be seen in long rows where they have been thrown out in dredging for a boat way in the Coinjock Bay, a southwestern extension of the Sound. Further there were such changes in vegetation as brought countless thousands of ducks of species that had been only occasional before. The salt water fishes were driven out and fresh water fishes took their place. (Amer. Journ. Sci., IV, 1897, p. 76).

**Geological News.**—GENERAL.—Mr. J. C. Branner questions the somewhat prevalent idea that rock decay is, like organic decay, a process of bacterial growth. He cites a number of authorities who are all agreed as to certain conditions favorable for the growth of bacteria, and quotes experiments to show that these conditions do not exist below certain limited depths of the soil. Since granites are often decomposed to depths of more than 100 feet, it is not probable that bacteria are responsible for this deep decay, or for any considerable part of it. (Amer. Journ. Sci., Vol. III, 1897.)

CENOZOIC.—The jaws of a true monkey have been found by Mr. Forsyth Major in the Æpyornis beds of Madagascar. From their size M. Gaudy infers that the animal was about as large as a man. The molar teeth recall Mesopithecus and Semnopithecus. In general appearance the teeth resemble those of the Old World monkeys, but their number corresponds with those of the New World. For this new fossil Mr. Forsyth Major proposes the name *Nesopithecus robertii.* (Revue Scient. (4) VI, 1896.)

Dr. J. C. Merriam notes the occurrence of marine Tertiary horizons at two localities in Vancouver Island—Carmanah Point and at the Sooke District. Thirty-three invertebrate species are identified from the first named place, and serve to correlate the formation with Conrad's Astoria Miocene. The fauna of the Sooke beds is quite different from any of the Oregon or Californian Miocene or Pliocene faunas known to the writer. His conclusion, however, from evidence in hand, is that the Sooke beds are of middle Neocene age, and that the time of their deposition was considerably later than that of the Carmanah Point beds. (Univ. Calif. Bull., Dept. Geol., Vol. 2, 1896.)

A recent Bulletin of the *Soc. Belge de Geol.* contains a figure of the femur of the anthropomorphous monkey found by Kaup in the Pliocene beds (Rhenan) at Eppelsheim (Haut-Rhin). At first it was decided not to separate this form generically from the Dryopithecus of Saint-Gauden's, but a recent critical comparison made by Pholig demonstrates that such a distinction should be made. He therefore proposes the name *Paidopithex rhenanus* for the Eppelsheim species. A comparison of the Rhenan femur with those of modern allied forms shows it to be more anthropomorphous, both in general and in many details, than are those of the Gorilla or the Chimpanzee. (Bull. Soc. Belge de Geol., 7, IX (1895), 1897.)

## BOTANY.[1]

**The Death of Sachs.**—The death of Dr. Julius von Sachs, in Würzburg, on May 28th, is announced. He was born in Breslau in 1832, and was therefore sixty-five years of age at the time of his death. He was educated in the University of Prague, and in 1859 became assistant in physiological botany in the Royal Experiment Station at Tharandt, Saxony. In 1861 he became professor of botany in Bonn; in 1867 in Freiburg, and in 1868 in Würzburg. His most noted works are *Handbuch der Experimental-Physiologie der Pflanzen* (1865); *Lehrbuch der Botanik* (1st edition, 1868; 2d, 1870; 3d, 1873; 4th, 1874). *Geschichte der Botanik* (1875), *Vorlesungen über Pflanzen-Physiologie* (1882), and *Abhundlungen über Pflanzen-Physiologie* (1892). Of these the third and fourth editions of the *Lehrbuch*, *Geschichte* and *Vorlesungen über Pflanzen-Physiologie* were translated into English, and have been for years familiar to all classes of botanists in this country. The appearance of Bennett and Dyer's translation to the third edition of the *Lehrbuch* in 1875 marked an epoch in botany in America. The

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[1] Edited by Prof. C. E. Bessey, University of Nebraska, Lincoln, Nebraska.